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PATENT

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SPECIFICATION

INVENTION: **CORD SHORTENER**

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## **BACKGROUND**

**[0001]** The present disclosure relates to cord shorteners, and more particularly, to a cord shortening device that secures and stores a portion of a length of cord from, for example, an electric appliance.

**[0002]** Cord storage and take-up devices are known. Generally, those devices involve either a manual or mechanical winding of a length of cord around a spool inside the device. The devices typically include a number of parts connected together and have housings for storing and/or securing excess lengths of cord.

## **SUMMARY**

**[0003]** According to the present disclosure, a cord shortener, for storing an excess section of a length of cord, such as an electrical wire from an appliance, includes a monolithic, or one-piece, housing that has a first portion and a second portion monolithically connected by a living hinge. The monolithic housing is adapted to open and close by rotating one or both of the first and second portions about the living hinge. One of the portions includes a monolithically incorporated post which is configured to windably receive a first section of a length of cord. At least one of the first and second portions has an opening at at least one end to receive a second and third sections of cord.

**[0004]** The monolithic housing further has at least one monolithic closing mechanism operable when one or both of the portions are rotated about the living hinge and closed on one another.

**[0005]** Other aspects of the present disclosure will become apparent from the following descriptions when considered in conjunction with the accompanying drawings.

## **BRIEF DESCRIPTION OF THE DRAWINGS**

**[0006]** Figure 1 is a side view showing a cord shortening device in an opened condition, according to the principles of the present disclosure.

**[0007]** Figure 2 is a perspective view of a cord shortening device in another opened condition, according to the principles of the present disclosure.

**[0008]** Figure 3 is a plan view of the cord shortening device of Figure 1, in a closed condition.

**[0009]** Figure 4 is a side view of the cord shortening device of Figure 2.

- [00010] Figure 5 is an end view of the cord shortening device of Figure 2.
- [00011] Figure 6 is a perspective view of another embodiment of a cord shortening device, according to the principles of the present disclosure.
- [00012] Figure 7 is a side view of another embodiment of a cord shortening device, according to the principles of the present disclosure.
- [00013] Figure 8 is a perspective view of a connecting element and the cord shortening device of Figure 2.
- [00014] Figure 9 is a perspective view of a connecting element attached to the cord shortening device of Figure 8.

### **DETAILED DESCRIPTION OF THE DRAWINGS**

- [00015] An embodiment of a cord shortening device 10 is shown, for example, in Figures 1 and 2. Device 10 includes a monolithic, or one-piece, housing 12 having a first portion 14 and a second portion 16 connected by a living hinge 18. The living hinge 18 is a continuous, and monolithically incorporated connector between the first and second portions 14, 16. As shown in Figures 2 and 6, for example, each of the first and second portions 14, 16 has openings 20 at respective opposite ends 14A, B and 16A, B, as shown in Figures 1 and 2. However, the openings 20 may be on only one of the first or second portions 14, 16 and/or may be at only one end, A or B (see Figure 3). The monolithic housing 12 is adapted to be opened and closed by rotating one or both of the first and second portions 14, 16 about the living hinge 18 and then having the first and second portions 14, 16 close on one another into a closed condition (see Figures 3-5). The first portion 14 may have a lip 15, which is received in and aligns the first portion 14 with the second portion 16 when closed.
- [00016] The second portion 16 of the monolithic housing includes a monolithically incorporated post 22, as shown in Figure 2. The post 22 is configured to windably receive a first section of a length of cord 24, as shown in Figure 1. The cord 24 may be manually or otherwise wound about the post 22. The second portion 16 may also include a lower opening 17, as shown in Figure 2, which lower opening 17 extends at least partially into post 22, resulting in at least a partially hollow post 22. The lower opening 17 may be created during a molding of the device 10.

**[00017]** As shown in the embodiment of Figures 1-5, device 10 may have a through-opening 21 on a first surface 14C that penetrates through the first portion 14. Such opening 21 is configured to receive at least a part 22P (see Figure 3) of post 22, which post 22 has a total height H (see Figure 2). At least a portion of post 22 protrudes through opening 21 when the first and second portions 14, 16, respectively, close on one another (see Figures 4-5). Such a protrusion of part 22P in this embodiment of device 10 helps prevent any of the length of cord 24 from unwinding and coming off post 22.

**[00018]** Alternatively, as shown in the embodiment of Figure 6, device 10A includes first portion 14 that may not have an opening in first surface 14C, such as opening 21, of device 10. The post 22 may have a height H', such that the post 22 does not protrude through first surface 14C of the first portion 14, but only reaches up to or adjacent a second surface or underside 14U of the first surface 14C of first portion 14. Thus, the embodiment of Figure 6 is essentially the same as the embodiment of Figures 1-5 except for the height H' of the post 22 and except that the first portion 14 does not have a through-opening such as opening 21.

**[00019]** When the monolithic housing 12 is in a closed position (as shown in Figures 3-5), which occurs by rotating one or both of the first and second portions 14, 16 about the living hinge 18 (as shown in Figure 1), at least one slot 26 is formed, from opening 20, as shown in Figure 5. However, a slot 26 may be formed at respective opposite ends 28 of the housing 12 by the coming together of openings 20 at both ends, A and B, of the housing 12 (both openings 20 not shown). A slot or slots 26 may form enclosing mechanisms 30 for releasably enclosing second and third sections of the length of cord 32, 34 (see Figures 3-5).

**[00020]** The device 10 further includes a securing mechanism that is monolithically incorporated with the monolithic housing 12. The securing mechanism is configured such that when the first and second portions 14, 16 are closed on one another, they are held releasably secure. The securing mechanism may, for example, include interlocking elements of a snap closure. These interlocking elements may include at least one tab or protrusion 38 (shown as only one protrusion 38 in Figure 2) on or adjacent an edge 40 of the first portion 14. Protrusion 38 has a sufficient depth 38A such that protrusion 38 securedly and releasably mates with at least one recess or through opening 42 (shown as one recess 42 in Figure 5) on or adjacent an edge 44 of the second portion 16. The location of the at least one protrusion 38 and the at least

one recess 42 may be reversed, with the at least one protrusion 38 on the second portion 16, and the at least one recess 42 on the first portion 14. The portions 14, 16 should be flexible or resilient enough to bend and release the protrusion 38 from the recess 42, thereby opening the device 10, when, for example, portion 14 is pushed inward at, for example, location 14L adjacent the protrusion 38. Otherwise, the secured nature of the mating of protrusion 38 and recess 42 may make it difficult to open the device 10, which difficulty may be a desirable situation to prevent, for example, a child from opening the device 10.

**[00021]** Alternatively, in another embodiment, such as device 10B shown in Figure 7, the securing mechanism may, for example, include a top portion 36 of the post 22 being configured such that the top portion 36 resiliently and releasably mates with all or part of an edge 21E of a circumference 21C surrounding opening 21 on first surface 14C of first portion 14. All or part of the edge 21E is configured such that, when mated in a snapping manner with top portion 36, the first and second portions 14, 16, respectively, are releasably and securedly held together when they are closed on one another. Other, differently shaped and/or structured monolithic or integrally connected securing mechanisms may be used to releasably secure the first and second portions 14, 16 together. The securing mechanisms may also be external to the device 10.

**[00022]** When the device 10 is in a closed position, the first section of the length of cord 24 is stored in the monolithic housing 12 and the second and third sections of the length of cord 32, 34 are releasably enclosed by the enclosing mechanisms 30, as shown in Figures 3-5.

**[00023]** The monolithic housing 12, living hinge 18, post 22 and the securing mechanisms may be made of molded plastic, rubber or comparable material providing the desired resiliency and facilitating the operation of the living hinge 18, the enclosing mechanisms 30 and the securing mechanisms.

**[00024]** The post 22, shown as a cylindrical shape in Figure 2, may be tapered at one or both ends and may be substantially centered or centrally located in the lower portion 16, as shown in Figure 2, or be otherwise located as part of the housing 12. Other shapes of post 22 are possible.

**[00025]** The monolithic housing 12 may be in the shape of a clam shell, as shown in the embodiments of Figures 1-7. Other shapes or configurations are possible, for example, such as shapes in the form of humans, other animals, reptiles or insects.

**[00026]** Overall, the embodiments of the cord shortening devices 10, 10A, 10B of the present disclosure store and secure an excess length of cord from, for example, electrical appliances in children's rooms to help prevent accidents. The monolithic structure of the cord shortening devices 10, 10A, 10B, with their monolithic housing 12, post 22, first and second portions 14, 16 connected by the living hinge 18, and the securing mechanisms, aids in economical manufacturing and ease of use for the consumer. The monolithic securing mechanisms, post 22 and living hinge 18 connecting the first and second portions 14, 16 eliminates the need for assembly. The living hinge 18 helps prevent loss of the lid 14. The post 22 helps to ensure that a desired length of cord is windable and storable in the device 10. A post 22 having at least height H' helps to ensure that the first section of cord 24 cannot unwind and come off the post 22.

**[00027]** The cord shortening devices 10, 10A, 10B may also include a connecting element, such as, for example, a suction element or suction cup 50, as shown in Figure 8. Suction cup 50 is adapted to be attached to the second portion 16. That attachment may be, for example, by an interference fit of a protrusion 52 on the suction cup 50 with lower opening 17, which lower opening 17 is adapted to receive the protrusion 52 (see Figures 8 and 9). The suction cup 50 or equivalent connecting element, once fitted into the opening 17 (see Figure 8) may be used to releasably attach the cord shortening device 10, 10A, 10B, which may have, for instance, a portion of an electrical cord from a lamp in a baby's room releasably enclosed therein (not shown), to a support (not shown), such as a wall area adjacent, for example, an electrical plug receptacle (not shown). A portion of the electrical cord may be dangling loose adjacent the plug receptacle. Therefore, attaching the cord shortening device 10, 10A, 10B to the wall area is useful in locating the portion of the electrical cord at a place in which that portion of cord poses less of a potential danger for a child in the vicinity of the plug receptacle.

**[00028]** Although the present disclosure has been described and illustrated in detail, it is to be clearly understood that this is done by way of illustration and example only and is not to be taken by way of limitation. The spirit and scope of the present disclosure are to be limited only by the terms of the appended claims.